Forest Health Notes

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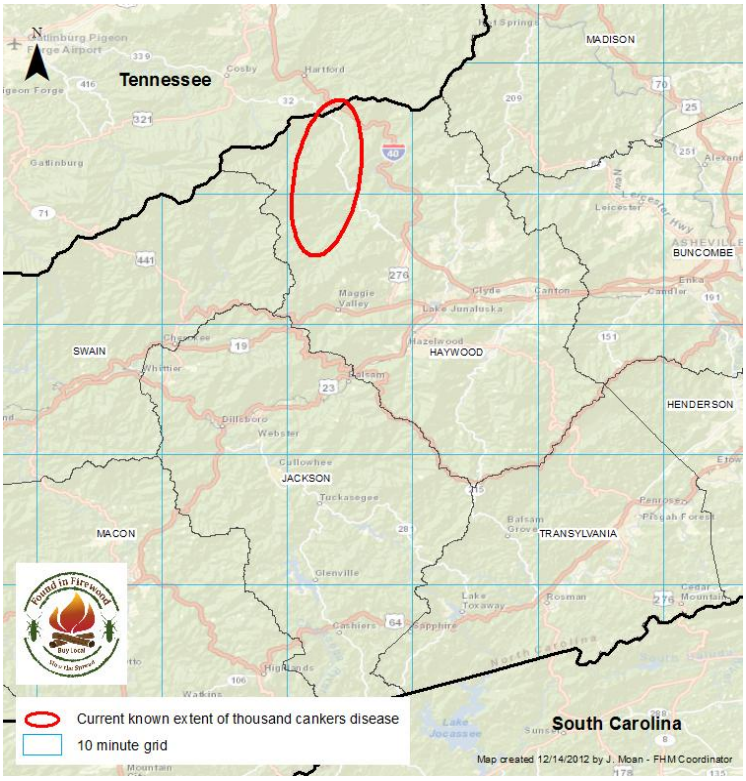
Thousand Cankers Disease Confirmed in North Carolina Mountains

Our fears were recently realized when *Geosmithia morbida*, the fungus that causes thousand cankers disease (TCD), was confirmed in declining walnuts in Haywood County, North Carolina within Great Smoky Mountains National Park. The disease was found by researchers during surveys of the park's walnuts. **This is the first detection of TCD in North Carolina.**



In 2010, the Tennessee Department of Agriculture confirmed the presence of TCD in Knox County, Tennessee. This find in Tennessee marked the first time the disease had been confirmed east of the Mississippi River and within the native range of black walnut. By the summer of 2012, the disease had been found in six counties in eastern Tennessee, including two that border North Carolina, several counties around Richmond and Fairfax, Virginia, and in Pennsylvania.

What it is

Thousand cankers disease is caused by the fungus *Geosmithia morbida*, which is vectored by the walnut twig beetle (*Pityophthorus juglandis*).

Prior to the recent finds in the East, the walnut twig beetle had been identified in association with walnut mortality in several western states including Arizona*, New Mexico*, California*, Utah, Colorado, Idaho, Oregon, and Washington. By itself, the beetle does not cause significant problems; however, in combination with *Geosmithia morbida* it causes the highly destructive TCD. The walnut twig beetle is in the same family

* Denotes the native range of walnut twig beetle

as the southern pine beetle and *Ips* engraver beetles, and like these beetles, it is very small; adults are roughly 1/16 of an inch long.

The TCD pathogen generally kills the host tree 2-3 years after initial symptoms are observed. When a beetle bores into the twig, the *Geosmithia* fungus causes a small brownish-black canker to develop within the bark around the beetle's entry hole. Branches and stems may be attacked by many beetles, resulting in a large number of these small cankers that eventually overlap and girdle the tree. The thousands of beetle attacks and subsequent cankers give thousand cankers disease its name.

Both walnut species native to North Carolina (black walnut and butternut) can be affected by this disease. Black walnut is considered highly susceptible to TCD. As of now, we do not know how to protect or save trees from thousand cankers disease. The best thing to do at this point is to quickly detect its presence in new areas and destroy affected portions of diseased trees. The primary focus right now is to prevent further spread of this disease, especially spread caused by humans.

Signs and Symptoms

The most obvious symptoms are dieback and mortality. Like many species of bark beetles, small, round entry/exit holes may be present along infested branches or stems and adult beetles may be present at certain times of the year. Additionally, some weeping may be seen around beetle entry holes. If you suspect that a tree may have TCD, the walnut twig beetle galleries and associated cankers can be found within the bark. Photos of signs and symptoms are shown on Page 4.

How It Spreads

The walnut twig beetle and TCD can easily be transported to new locations with human assistance. The beetle is very small and very difficult to detect. The cankers caused by the fungus can also be tricky to find since they are confined to a very thin layer below the outer bark. Even with a trained eye, signs of both the beetles and the pathogen can be easily missed.

Any twig beetles living in the bark of affected wood can emerge during transport or at the final destination and attack new trees, spreading the disease to new locations.

Though natural spread is occurring around infested areas, the initial infestation in Tennessee was found at least 1,000 miles from the next closest known infestation. We can help limit the spread of TCD in North Carolina by promoting the use of local firewood in our homes and at our parks and campgrounds.

What is Being Done

After the pathogen was found in the state for the first time, an evaluation determined that it is in the best interest of the state and its walnut resources to try to confine the infected area to as small of an area as possible. Movement of walnut plants and plant parts including nursery stock, firewood, logs, stumps, roots, branches, and composted and uncomposted chips can quickly spread walnut twig beetle, and the fungus that causes the disease, to new areas of the state.

Walnut trees can be harvested in a quarantined area as long all parts of the tree (except nuts, nut meat and hulls) stay within the quarantined area. That means harvested materials can only be left on site or transported to locations inside of the quarantined boundaries. This applies to both diseased and healthy trees.

Only wood that has been has been processed into lumber (100% bark-free, kiln dried and square edges) or finished wood products without bark, including walnut furniture, instruments, and gun stocks can be moved out of a quarantined area. Harvested walnut wood can freely move from a non-quarantined area ***into*** the quarantine boundaries.

Advice for Landowners

There is no need to panic just because the disease is found in the state. Natural spread of thousand cankers disease is thought to be slow. If someone is growing walnut timber on their property, they should monitor their trees for disease symptoms. As long as trees are healthy, growing, and not under imminent threat from the disease, they should continue to be managed according to a forest management plan.

If walnut trees are found to be infected, a salvage harvest may be an option. The walnut twig beetle and the fungus are found only in the bark and possibly on the edge of the live wood so timber quality will not be affected directly by the insect or pathogen.

There are many variables that determine the value of walnut trees for wood products. For an appraisal of the value of walnut wood and assistance with marketing, landowners/homeowners should contact a consulting forester or consulting arborist, whichever is appropriate for their situation:
http://www.ncforestservice.gov/Managing_your_forest/consulting_foresters.htm
http://www.ncforestservice.gov/Urban/urban_consultingarborists.htm

What To Do If You Suspect Thousand Cankers Disease

Because state and federal agricultural and forestry agencies are tracking the spread and potential impacts of thousand cankers disease, confirmation of any new records of the disease must be made according to strict guidelines. Report the location and descriptions of any walnut trees suspected of being infected with TCD to:

1-800-206-9333
or
newpest@ncagr.gov.

DO NOT COLLECT SAMPLES
SAMPLES SHOULD ONLY BE COLLECTED AND TRANSPORTED BY TRAINED PERSONNEL.

Signs and Symptoms of TCD

Declining Walnut
C. Utley, CSUE , www.forestryimages.org

Severely cankered stem
N. Tisserat, Colorado State University, www.forestryimages.org

Weeping from beetle entry holes
N. Tisserat, Colorado State University, www.forestryimages.org

Additional Information

For additional information, please visit these links:

USFS Pest Alert:
http://na.fs.fed.us/pubs/palerts/cankers_disease/thousand_cankers_disease_screen_res.pdf

USFS Forest Health Protection: www.fs.fed.us/r8/foresthealth/forestpests/tcd/

Firewood movement - www.dontmovefirewood.org/

For other non-native forest pests of concern to North Carolinians please visit
www.ncforestservice.gov/forest_health/fh_firewood.htm

Contacts:

For information about TCD in North Carolina, contact NCFS Forest Health Branch staff

Brian Heath, *Forest Health Specialist – West,* Brian.heath@ncagr.gov, (828) 413-2291
Kelly Oten, *Forest Health Specialist – East,* Kelly.oten@ncagr.gov, (919) 609-1556
Jason Moan, *Forest Health Monitoring Coord.*, Jason.moan@ncagr.gov, (919) 553-6178 x223

For regulatory or quarantine questions, contact Plant Industry Division

Phillip Wilson, Plant *Pest Administrator*, Phil.wilson@ncagr.gov (919) 707-3753

Report New Infestations to: 1-800-206-9333 or to newpest@ncagr.gov